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CHEWABLE FLAVOR DELIVERY SYSTEM

BACKGROUND OF THE INVENTION

The present invention pertains to chewable flavor delivery systems with sustained release of flavorant containing only natural ingredients.

Chewing gums, as shown by U.S. Patents 5,116,627 and 5,139,787
5 contain, among other things, a flavoring that the user of the gum desires to have present in the mouth for a period of time.

Synthetic compositions for providing sustained release of flavorants have been developed. One such composition is illustrated in U.S. Patent 4,992,280.

Even animals have been provided with extended flavor releasing toys,
10 such as shown in U.S. Patent 4,557,219.

In addition to chewing gums, there is a segment of the population that uses what is referred to as smokeless tobacco. The smokeless tobacco is taken orally and can be flavored or unflavored. Smokeless tobacco can be chewed much like chewing gum. Chewing tobacco is usually formed in strands or larger pieces of the tobacco leaf. Smokeless tobacco can also be placed loose between the cheek and gum,
15 with this type usually manufactured in small granular form. Another form of smokeless tobacco is finely divided tobacco particles that are packed into porous paper pouches, which are also placed between the cheek and gum.

The flavor enjoyment of smokeless tobacco comes partially from the initial flavor burst from any flavors such as peppermint, apple, peach and the like that are added to the tobacco and lastly, the slow release of the tobacco flavor itself.

5 In the past, mixing flavors with a substrate such as a cellulose powder has been tried as a tobacco substitute but found to be unsatisfactory. This has been due to the fact that the flavors wash out of the substrate thus, they do not last as long as tobacco based products.

10 Therefore, there is a need to find a tobacco substitute that in essence eliminates the use of the tobacco leaf itself and may use only minor amounts of tobacco flavoring.

BRIEF SUMMARY OF THE INVENTION

15 The present invention uses a dried cellulosic material, e.g. cabbage, which is prepared into strand form or relatively coarse granules. The cellulosic material is dried to a moisture content of less than 8% by weight and is prepared in a manner so that at least 30% of the cell walls of the cellulosic material remains in tact. The cellulosic material is combined with flavoring ingredients and a humectant to achieve the final composition which can be chewed or used without chewing in the mouth of a user.

20 Therefore, one aspect of the present invention is a chewable flavor delivery system comprising in combination; a carrier consisting of an edible cellulosic plant material dried to a moisture content of at or below 8% by weight, the plant material having at least 30% intact cell walls, a water soluble but not water containing flavoring ingredient in liquid form and capable of entering the intact cell walls in the plant material, and an effective amount of a food safe humectant contained in the
25 delivery system.

In another aspect the present invention is a flavor delivery system comprising in combination; a heat sealable paper pouch adapted to be placed in the mouth of a user, and a mixture comprising an edible cellulosic plant material having at

least 30% intact cell walls, a flavoring ingredient, incorporated into the plant material and a humectant, inserted into said paper pouch.

In yet another aspect the present invention is a tobacco substitute comprising in combination; an edible cellulose plant material dried to a moisture content at or below 8% by weight, the plant material having at least 30% intact cell walls, a water soluble but not water containing flavoring ingredient in liquid form and capable of entering the intact cell walls in the plant material, and an effective amount of a food safe humectant.

In still a further aspect, the present invention is a tobacco substitute comprising in combination 26 to 46 percent by weight cellulosic plant material having at least about 30% intact cell walls; 29 to 53% by weight humectant; 11 to 14% by weight being one of coffee or caffeine 0.7 to 1% by weight sweetening agent; and 5 to 10% by weight flavoring ingredient other than tobacco.

DETAILED DESCRIPTION OF THE INVENTION

In recent years, much as been written about the oral use of tobacco either as chewing tobacco or what is sometimes referred to as snuff, a finely divided granular tobacco that is placed loosely between the cheek and gum or is packed into porous paper pouches and which can be placed between the cheek and gum of the user.

Confirmed oral tobacco users could attempt to stop the use of conventional oral tobacco products if a chewable flavor delivery system simulating oral tobacco were devised.

According to the present invention, such an oral tobacco substitute can be manufactured using dried cellulosic material such as freeze dried cabbage. The freeze-dried cabbage is combined with a flavoring, humectant, minor amounts of a sweetener and optionally a coloring ingredient to simulate oral tobacco.

The humectant is selected to provide, in the case of smokeless tobacco, like properties of cohesiveness and wetness. In other applications the humectant will act as a lubricant that will not promote microbiological growth while giving the

appearance of wetness. In addition to glycerins and propylene glycol vegetable oils can be used.

It is also within the purview of the present invention to achieve other chewable flavor delivery systems, the salient feature of the invention being the use of a cellulosic material dried to a moisture content of 8% or below and having at least 30% of the cell walls in tact.

One particular cellulosic material that is found to be particularly effective in the present invention is a freeze dried green cabbage, which is classified as Brassica, oleracea capitata sold by R. J. Van Drunen & Sons Inc. of Momence, Illinois. Freeze-dried green cabbage granules having a size range from minus twelve (-12) to plus thirty (+30) mesh determined by using a U.S. Standard Sieve Series apparatus are particularly effective for use in the present invention.

Set forth in Table 1 are a series of compositions that were prepared according to the present invention.

TABLE 1

COMPONENT	SAMPLE (% by weight)							
	1	2	3	4	5	6	7	8
CABBAGE (-20 +30)	46.96	44.5	48.0					
CABBAGE (-16 +20)					40.00	40.00	40.00	40.00
CABBAGE (-12 +20)				26.82				
USP GLYCRINE 96%	31.33	29.55	31.33	53.62	42.90			42.83
PROPYLENE GLYCOL						42.90	42.83	
COLOMBIAN COFFEE*	13.20		13.20	13.40	11.0	11.00	11.00	11.00
CAFFEINE		13.64						
IRISH CRÈME FLAVOR			6.40	5.36	5.36	5.36	5.36	5.36
PEPPERMINT FLAVOR	7.00	9.09						
TOBACCO FLAVOR	0.54	0.45	0.10					
ASPARTAME	0.98	0.95	0.98	0.80	0.7	0.7	0.81	0.81

CARMEL COLOR		1.82						
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* Soluble (instant) Columbian Coffee

Sample 1 in Table 1 was prepared by adding the aspartame and coffee to dry cabbage granules, which were then mixed well. Thereafter, glycerin and flavors were added with further mixing. The composition was then packaged into Dexter No. 11557 heat sealable paper pouches, which are approximately 0.5 inches by 0.8 inches in dimension. Each pouch contained approximately 0.35 grams of the composition. The pouches were pretreated by being dipped into a solution containing, water, Freeze-dried (instant) Colombian Coffee 1A-BBB, natural peppermint flavor 2006, aspartame and Frutarom tobacco flavor 36.210. FD (freeze-dried) Colombian Coffee 1A-BBB is the same coffee used in preparing sample 1 and is available from American Instants of Flanders, N.J. The natural peppermint flavor is available from Mother Murphy of Greensboro, N.C. and the tobacco flavoring is available from Frutarom of North Bergen, N.J. The pouches were air dried after dipping and before filling.

Sample 2 was prepared using cabbage granules having a particle size of minus 20 plus 30 mesh, natural caffeine anhydrous U.S.P. available from Haglin Flavors of Branchberg, N.J, natural peppermint flavor #2006, caramel color 325 available from Sethness of Clinton, IA, aspartame and Frutarom tobacco flavor 36.210. The pouches into which sample 2 were packed were the same size as the pouches used for sample 1, except that the pouches were dipped into a solution containing water, natural peppermint flavor #2006, caramel color #325, aspartame and Frutarom tobacco flavor 36.210.

Sample 3 was the same as sample 1 except that Irish Crème flavor 867.150/WC supplied by Flavors of North America of Carol Stream, IL was included in addition to the Colombian Instant coffee 1A-BBB. Compositions according to sample 3 were also packaged into pouches similar to those used for samples 1 and 2 with the pouches being pretreated by dipping in a solution containing water, Colombian Instant Coffee Irish Crème flavor 867.150/WC, aspartame and Frutarom tobacco flavor 36.120, followed by drying the dipped pouches prior to filling.

Sample 4 was made with cabbage granules having a size of a minus 12 to plus 20 mesh and after mixing were not placed into pouches but were packaged into air tight containers or into film having a good barrier to entry of atmospheric moisture.

5 Sample 5 was produced with 40% by weight cabbage granules having a size of minus 16 to plus 20 mesh and was packaged into an airtight container.

Sample 6 was the same as sample 5, except that propylene glycol was substituted for the glycerine.

10 Sample 7 was the same as sample 6 with propylene glycol instead of glycerin with a slight adjustment in the content of the aspartame and the propylene glycol.

Sample 8 was a replication of sample 7 using glycerin instead of the propylene glycol.

All of the above samples were tested by users of smokeless tobacco and were found to be acceptable substitutes.

15 As stated herein before, the core of the invention is using a cellulosic plant material in place of gums or synthetic carriers to provide the carrier for the flavor. Maintaining a minimum quantity of the cell walls of the cellulosic material in tact provides a place for the flavoring to be captured and to provide the extended release aspect of the present invention.

20 Having thus described our invention what is desired to be secured by Letters Patent of the United States is set forth in the appended claims.